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Review

The impact of attitudes towards the menopause on women's symptom experience: A systematic review

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ABSTRACT

Objectives: There is an assumption in menopause research that attitudes to menopause are influenced by a range of cultural, social and psychological variables, which may in turn affect menopausal experience and symptom reporting. However, many studies draw conclusions about this relationship without explicitly examining the empirical evidence. Therefore, the aim of this systematic review is to examine the relationship between attitudes towards menopause and symptom experience using original research studies.

Methods: Computerised literature searches were performed with Medline, Web of Knowledge and PubMed databases using 'menopause' and 'attitudes' as the main search terms. Studies were considered if they included a measure of attitude and a measure of menopausal symptoms, if they were original research studies, and if they examined and reported on the relationship between women's attitudes to menopause and their symptom experience.

Results: Thirteen studies were included in the review, 1 longitudinal, prospective study and 12 cross-sectional studies. The results of 10 studies supported the view that women with more negative attitudes towards the menopause report more symptoms during this transition and 3 studies found no significant association between these variables.

Conclusion: Women with more negative attitudes towards the menopause in general report more symptoms during the menopausal transition. However, use of standardised culturally sensitive attitude, and specific symptom, measures are recommended in future prospective studies.

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1. Introduction

The most common symptoms reported by women during the menopause transition are hot flushes and night sweats (HF/NS), which affect approximately 70% of women in Europe and North America; however the prevalence of vasomotor symptoms and the experience of menopause varies considerably between cultures and countries [1,2]. For example, vasomotor symptoms are not so widely reported in countries such as India, Japan and China [1,3–5]. Cultural differences have been explained by differences in attitudes and meanings of menopause, such as the extent to which menopause is seen as a medical condition or a natural phenomenon, or whether mid-life represents positive or negative social changes and/or values within a society [6]. There is some evidence from anthropological and qualitative studies that social and cultural meanings vary considerably [1,7] but the causal role of such meanings is unclear. Additional explanations offered by researchers for the differences in symptom experience within and between cultures include diet, body mass index, exercise and mood, as well as attitudes towards menopause [8–11]. Despite interest in the role of attitudes, few studies have explicitly examined the relationships between attitudes and symptom experience [12,13].

There are considerable methodological issues in this area of research when standardised questionnaires are applied in different cultures [14]. Studies of women's attitudes towards the menopause have tended to use the Attitudes Towards Menopause Scale (ATM) [15], the Menopause Attitudes Scale (MAS) [16] or have developed an appropriate measure from these scales—these ask about general attitudes towards menopause as opposed to attitudes about one's own menopause and are ideally measured prospectively before the menopause occurs in order to provide evidence of causal influence.

The aim of this systematic review is to examine the relationship between attitudes towards menopause and symptom experience, with a partial focus on HF/NS using original research studies which explicitly explore the relationships between measures of these variables. For the purpose of the review attitude towards menopause is defined as 'an individual's opinion or general feelings about the menopause' rather than feelings about one's own menopause and menopausal symptoms are defined as HF and NS (the most commonly reported symptoms [2] and the ones thought to be linked to oestrogen instability and hormone fluctuations [17,18]). However, few studies reported only HF/NS because many studies reported other general symptoms alongside these; therefore there is a partial focus on HF/NS.

2. Methods

This review follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses 2009 Guidelines (PRISMA) [19], previously known as QUOROM. These outline an evidence-based minimum set of items which should be used for systematic reviews and meta-analyses. Computerised literature searches were performed to identify studies which investigated the relationship between women's attitudes towards the menopause and their symptom experience. The databases used were Medline, Web of Knowledge and PubMed (all from their inception to August 2009) with the search terms 'menopause' and 'attitudes'. There were no restrictions on the language of publication.

2.1. Inclusion criteria

Studies were considered if they included a quantitative measure of attitude and a measure of menopausal symptoms (as defined previously), were original research studies, and if they examined and reported on the relationship between women's general attitudes towards menopause and their menopause symptom experience.

2.2. Data extraction

The data were extracted according to pre-defined criteria (study participants, study design, measures, and major results) by the first author and validated by the second author. No formal statistical analysis was performed due to the heterogeneity of the included studies, e.g. variation in the menopausal status of women, and measures of attitudes and symptoms used.

3. Results

The search identified 704 possible papers for review. Abstracts and titles were scanned and 610 papers were rejected for not examining women's *attitudes* towards menopause. The remaining 94 abstracts were subject to more detailed analysis and 53 further papers were rejected as they did not examine the link between attitudes and menopausal symptoms or were not original research studies (reviews, etc.), leaving 41 papers for inclusion.

Of these, 14 papers did not directly examine or report data on the association between attitudes and symptoms [20–33], 4 papers did not include measures of either attitudes or symptoms [34–37], 1 reported data from a study already included in the review [38], 4 were not based on original research (literature reviews/editorials) [2,12,39,40], 1 reported results relating to the relationship between attitudes and depression but not specifically attitudes and symptoms [41], 2 papers described scale development for attitude measures but did not investigate the link between menopausal symptoms and attitudes [15,42] and 1 paper investigated women's attitudes to their own menopause rather than general attitudes [43]. Excluding the above papers left 14 papers for inclusion in the review [44–57], 1 of which was a longitudinal study presented in 2 papers, including baseline and follow-up data—this has been treated as 1 study/paper [44,45].

Our searches revealed 13 studies which met our inclusion criteria (Table 1); the inclusion criteria were not quality-based but instead based purely on threshold levels of relevance. Excluded studies were tabulated but not discussed (Table 2).

3.1. Country of study

Of the 13 included studies, 6 were conducted in North America [44–46,50,53–59] (1 including a sample of African American women), 2 in Mexico [52,56], 2 in China [48,49], 1 in Sweden [47], 1 in Turkey [51] and 1 in Israel [57]. This may account for any differences in measures and results reported across the different samples [1].

3.2. Prospective studies

The only prospective study matching the inclusion criteria was the Massachusetts Women's Health Survey (MWHS) [44,45] which followed 2545 women aged 45–55 for 5 years. Findings from premenopausal women at baseline and postmenopausal at the sixth and last follow-up ($n = 434$) were presented in a separate paper [45]. This study included a sub-group of women who completed attitude measures prior to becoming perimenopausal. The MWHS included general attitudes towards cessation of menses and menopause similar to those developed by Neugarten et al. [15], completed twice during the study (once in interviews 1–3 and 4–6) and a symptom checklist completed at each interview, indicating symptoms experienced in the past 2 weeks. The majority of women reported positive or neutral attitudes towards menopause, and the experience of menopause led to more positive attitudes (i.e. postmenopausal women had the most positive attitudes). Interestingly, women with more negative attitudes generally reported more

Table 1
Details of included studies.

Ref NO.	Author	Sample	Design	Menopausal Status	Country	Measures	Effect size
[44]	Avis and McKinlay	2565 women (from MWHS) aged 45–55 years	Prospective	252 premenopausal 1628 perimenopausal 261 postmenopausal 78 surgical menopause	Massachusetts	Attitude questions Menopause Status Socio-demographic variables Menopausal Symptoms The Centre for Epidemiologic Studies Depression Scale	Unable to calculate
[45]	Avis et al.	454 women, sub-sample of 131 women completed lifestyle variables prior to becoming perimenopausal aged 45–55 years	Prospective	454 premenopausal (baseline) and postmenopausal (last follow-up)		In addition to those above: Reproductive history Health status Health care utilisation Lifestyle factors Length of perimenopause Bothersomeness of symptoms Stress from others	Unable to calculate
[46]	Hess et al.	728 women (baseline only) aged 40–65 years	Cross-sectional	22% premenopausal 15% early perimenopause 6% late perimenopause 15% early postmenopause 19% late postmenopause 17% hysterectomy	US	RAND-36 (quality of life)	Unable to calculate
[47]	Barth Olofsson and Collins	148 women aged 53 years	Cross-sectional (data from 4th annual follow-up)	27% perimenopausal 15% postmenopausal	Sweden	General health screening Hormone measurements Psychological interview (socio-demographic background, work role, general health/health history, menopausal status, lifestyle, life stress, symptoms and attitude towards menopause) Symptom scale – adapted from the menopause symptom inventory (MENSI)	Negative mood: Negative attitude ($r^2 = .17$) Stress in life ($r^2 = .24$) Health complaints ($r^2 = .27$) Vasomotor symptoms and postmenopausal status ($r^2 = .16$)
[48]	Shea	420 women – 399 included in analysis aged 40–65 years	Cross-sectional	115 premenopausal 98 perimenopausal 186 postmenopausal	Rural village and Urban neighbourhood in Beijing	Symptoms Checklis Attitudes towards menopause and agingt	Symptoms: Aging attitudes ($r^2 = .01–.04$) Menopause attitude ($r^2 = .01–.02$)
[49]	Cheng et al.	1113 women aged 43–57 years	Cross-sectional	39% premenopausal 29% perimenopausal 32% postmenopausal	Taiwan	Personal information Medical history Reproductive history Family history Personal habits Menopause-related attitudes Vasomotor symptoms	Unable to calculate
[50]	Hess et al.	725 women aged 40–65 years	Cross-sectional	No data	No data	Menopausal status and symptoms Hormone therapy (HT) use Medical co morbidities Attitudes towards menopause Social support Emotional well-being (EWB)	Unable to calculate
[51]	Akkuzu et al.	42 women aged 45–60 years	Cross-sectional	48% premenopause 50% menopause 2% postmenopause	Ankara, Turkey	The revised Attitudes toward Menopause Scale (ATM)	Attitudes towards menopause: Social withdrawal ($r = –.37$, $p = .020$) Vaginal itching/burning ($r = .65$, $p = .005$)

Table 1 (*Continued*)

Ref NO.	Author	Sample	Design	Menopausal Status	Country	Measures	Effect size
[52]	Bell	130 Mexican American women aged 28–75 years	Cross-sectional	39 premenopausal 14 perimenopausal 37 postmenopausal 40 surgical menopause	US (Mexican American)	Biological data Acculturation General Health Menopausal Symptoms Rosenberg self-esteem scale Menopausal status Attitudes towards menopause scale (ATM) Social Support (family and friends)	N/A
[53]	Papini et al.	169 married couples (F = 38–60 years) (M = 34–67 years)	Cross-sectional	50% premenopausal 27% perimenopausal 12% postmenopausal 11% surgical menopause	US	Menopausal status The Menopause Attitude Scale (MAS) The Menopausal Symptoms Checklist (MSC)	N/A
[54]	Huffman et al.	226 women aged 35–55 years	Cross-sectional	33% hysterectomy No data on menopausal stage	21 American states (African American)	The Menopause Symptoms List (MSL) The Menopause Attitude Scale (MAS) Attitudes towards menopause checklist (ATM)	Menopausal symptoms and attitude ($r = -.16$, $p < .05$)
[55]	Wilbur et al.	193 women stratified by occupation, race and age group (149 included in analysis) aged 35–69 years	Cross-sectional	52% premenopausal 13% perimenopausal 23% postmenopausal 13% hysterectomy	Chicago	Menopausal Status (self-report and serum estradiol and follicle stimulating hormone levels) Kaufert and Syrotuik Symptom Index 10-item Affect Balance Scale The Centre for Epidemiologic Studies Depression Scale The Menopause Attitude Scale (MAS)	Menopausal attitude: General health ($r = -.19$, $p < .05$). Nervous symptoms ($r = .29$, $p < .001$) Genitourinary symptoms ($r = .17$, $p < .05$)
[56]	Sievert and Espinosa-Hernandez	755 women aged 40–60 years	Cross-sectional	303 premenopausal 9 perimenopausal 277 postmenopausal 175 surgical menopause	Puebla, Mexico	Attitudes toward menopause Menopausal Symptoms	Unable to calculate
[57]	Rotem et al.	82 women (36 treat, 46 cont) aged 40–60 years	Cross-sectional	82 postmenopausal	Northern Israel	The Menopause Attitude Scale (MAS) The Menopause Specific Quality of Life Questionnaire	Attitudes toward menopause: Physiological symptoms ($r = -.36$, $p < .001$) Social symptoms ($r = -.24$, $p < .05$) Psychological symptoms ($r = -.53$, $p < .001$)

Table 2
Details of excluded studies.

Studies excluded	Key details	Reasons for exclusion
Abraham et al. [20]	754 women completed questionnaires concerning attitude towards menopause and menopausal symptoms in 1982. 60 women aged 46–63 years from the original sample were followed up in 1992/3 (postmenopausal), they completed the same symptoms questionnaire as before. Findings suggest premenopausal symptoms and severity predicts type and severity of menopausal symptoms experienced later.	Does not investigate the relationship between menopausal attitudes and menopausal symptoms.
Avis and McKinlay [44]	2572 women, aged 45–55 completed questionnaires on attitude towards menopause, menopause status, menopausal symptoms and the CES-D. Findings suggest women who have more negative attitudes towards menopause generally report more symptoms and are more likely to be depressed.	Measures attitudes and symptoms and reports links between them but is based on data already included in review in another study by the same authors.
Bloch [43]	51 Austrian born women aged 44–64 years completed questionnaires on attitude towards menopause and menstruation, menopause and aging Symptoms, self-esteem, body-awareness and had Body mass index calculated. Findings suggest women who clung to the losses menopause (more negative attitude), experienced more troublesome symptoms.	Investigated women's attitude about their personal menopause rather than general attitudes towards menopause.
DiGirolamo et al. [39]	Description of recent studies which have investigated how confounding factors such as child bearing, attitudes, depression and anxiety impact on the menopause experience.	Editorial, not an original research study.
Discigil et al. [21]	142 women from Turkey, aged 19–74 completed a questionnaire on perception, beliefs, knowledge and attitudes for menopause. Findings show hot flushes, night sweats and irritability are the main symptoms experienced by women in Turkey and suggested health care services should provide care in the community for women in the menopausal period.	Does not investigate the relationship between menopausal attitudes and menopausal symptoms.
Duh Chen et al. [34]	208 Chinese women aged 35–55 living in Taiwan completed questionnaires on attitudes towards menopause, meanings of menopause and menopausal status. Findings suggest Chinese women in Taiwan perceive menopause in a positive and holistic way.	No measure of menopausal symptoms.
Ford et al. [35]	10 year longitudinal study examining hormone levels, health status and history, and menopause symptoms of 660 white women aged 24–44 years at baseline. Findings suggest many women have some degree of bother with menopausal symptoms.	No measure of attitudes towards menopause.
Frey [22]	78 women aged 40–60 years completed demographic questionnaires and the attitudes towards menopause questionnaire (including menopausal symptoms). Findings show women currently going through menopause show no greater frequency of symptoms then pre or postmenopausal women. Women generally view menopause on a wellness-illness continuum, rather than illness-wellness.	Does not investigate the relationship between menopausal attitudes and menopausal symptoms.
Glazer et al. [23]	160 mid-life women completed measurements at 3, 9 monthly intervals. Measurements included resources, coping, menopause symptoms, attitudes towards menopause, menopausal status, depression, anxiety, health-promoting activities and demographic data. Findings suggest health-promoting activities were predicted by attitude towards menopause and coping effectiveness.	Does not investigate the relationship between menopausal attitudes and menopausal symptoms.
Guthrie et al. [24]	9-Year prospective study following 438 Australian-born women, aged 45–55 at baseline. Interviews, blood sampling, menstrual calendars, quality of life and physical measures were taken annually; bone mineral density was taken annually. Findings suggest hormonal changes during menopause directly and/or indirectly affect quality of life, body composition and cardiovascular disease risk.	Does not investigate the relationship between menopausal attitudes and menopausal symptoms.
Hunter [25]	47 peri or postmenopausal women were selected from 850 who participated in a cross-sectional survey 3 years earlier. 36 were naturally peri or postmenopausal and participated in the study. Women completed demographic information and the women's health questionnaire (includes symptoms and beliefs about menopause).	Does not investigate the relationship between menopausal attitudes and menopausal symptoms
Hunter [2]	Summary of prospective studies which discusses possible psychosocial factors which may predict menopausal symptoms.	Not an original research study.
Hunter and Rendall [12]	Description of recent literature pertaining to biological and psychological perspectives of menopause, hot flushes and night sweats, and assessment and treatment of menopause.	Overview of menopause from the bio-psycho-socio-cultural perspective – not an original research study.

Table 2 (*Continued*)

Studies excluded	Key details	Reasons for exclusion
Koster et al. [26]	Prospective study from 1976 to 1996, following 357 women aged 40–60 years. Questionnaires were completed in 1976, 81, 87 and 1996, and included climacteric complaints/symptoms, general health, sexuality and concepts or menopause and aging. Findings suggest the strongest predictor of menopause experience was general health in earlier life.	Does not investigate the relationship between menopausal attitudes and menopausal symptoms.
Kowalcek et al. [27].	40 postmenopausal German women and 41 postmenopausal women from Papua New Guinea were asked about their experiences of menopause, including symptoms, positive and/or negative experiences and acceptance of HRT. Findings suggest experience of menopause is very different in developed countries compared to developing countries.	Does not investigate the relationship between menopausal attitudes and menopausal symptoms and only have abstract–full-text only available in German.
Kresovich [28]	94 women from Pennsylvania, aged 40–55 years were interviewed on menopause and completed the attitudes towards menopause scale and demographic information. Findings suggest there's no difference in attitudes of pre, menopausal and postmenopausal women, but some differences in attitude were found with regards to demographic variables.	Does not investigate the relationship between menopausal attitudes and menopausal symptoms.
Loutfy et al. [29]	450 women from Egypt aged 50–59 years completed interviews or questionnaires on knowledge of menopause, menopausal symptoms and demographic data. Findings suggest that women's knowledge was related to marital status, education and employment status.	Does not investigate the relationship between menopausal attitudes and menopausal symptoms.
Lu et al. [41]	266 Chinese women aged 45–55 completed questionnaires concerning depression (CES-D), Self-Concept, Climacteric symptoms, life events, attitudes towards menopause and demographic data. Findings suggest low self-concept and increased climacteric physiological symptoms are closely related to depression among menopausal women.	Reported results relating to the relationship between attitudes and depression but not attitudes and symptoms.
Lui and Eden [30]	310 Chinese women aged 45–65 years completed the Menopause Specific Quality of Life Questionnaire and demographic data. Findings suggest Chinese women living in Sydney report fewer vasomotor symptoms compared with Caucasian women.	Does not investigate the relationship between menopausal attitudes and menopausal symptoms
Maoz et al. [31]	1148 Israeli women of different ethnicities completed interviews concerning their menopausal symptoms and attitudes. Finding shoe attitudes vary across cultural origins, especially with regard to husband–wife relationships.	Does not investigate the relationship between menopausal attitudes and menopausal symptoms.
Neugarten et al. [15]	Exploratory interviews were conducted to determine women's attitudes towards menopause, and then a checklist of statements was developed from the interviews, with statements presented on a 4-point scale. Data for this scale is presented alongside findings by age and level of education.	Development of the attitudes towards menopause scale and no measure of menopausal symptoms.
Nusrat et al. [32]	863 women aged 42–80 years were interviewed using a semi-structured questionnaire. Items included demographic data, knowledge and attitude of women towards menopause, health problems related to menopause and experience of menopausal symptoms. Findings suggest the majority of women were unaware of menopausal symptoms and health effects and considered menopause a natural process of aging.	Does not investigate the relationship between menopausal attitudes and menopausal symptoms.
Punyahotra et al. [33]	268 Thai women aged 40–59 years completed questionnaires on lifestyle behaviours, menstrual history and menopausal status, knowledge about menopause, experience of menopausal symptoms and attitudes towards menopause. Findings suggest women who were more likely to experience symptoms were 50+ years, had more children, peri/postmenopausal, of little education, housewives or landowners and had reported their health was not so good.	Does not investigate the relationship between menopausal attitudes and menopausal symptoms.
Rendall et al. [42]	Exploratory interviews were conducted to determine women's beliefs about hot flushes, and then a checklist of statements was developed from the interviews, with statements presented on a 6-point scale. Validation and factor analysis data for this scale is presented.	Development of the Hot Flush Beliefs scale – does not investigate the link between menopausal symptoms and attitudes.
Sallam et al. [40]	Literature review of studies investigating menopause experience in Egypt from past ideas to current perspectives. Covers areas such as age at menopause, correlates of age at menopause, prevalence of symptoms and other health complaints, knowledge and attitudes towards menopause and treatment options.	Literature review of studies investigating menopause in Egypt – not original research study.

Table 2 (*Continued*)

Studies excluded	Key details	Reasons for exclusion
Theisen et al. [36]	287 women aged 35–55 completed Bowles' Menopause Attitudes Scale and questionnaires on menopausal status, social support, menopausal related changes and physical and emotional health. Findings suggest menopausal status, emotional health, social support and menopausal related changes predict attitudes towards menopause.	No measure of menopausal symptoms experienced, except hot flushes and this was only answered yes/no.
Uncu et al. [37]	1007 women aged 39–89 competed questionnaires and an interview on their medical history, current state of health, menopausal problems or concerns and what menopause meant to them. Findings suggest menopausal symptoms of Turkish women are similar to those of western women and women who perceived menopause as a natural life period had fewer menopausal symptoms than those who viewed it as a problematic period.	No actual attitude measure, participants were asked what menopause meant to them and this measure of perception was taken and related to symptoms.

symptoms and more bothersome HF/NS in cross-sectional analyses; however, this was also true for women with more negative attitudes prior to menopause, suggesting a self-fulfilling prophecy when the prospective analysis was conducted [44,45].

3.3. Cross-sectional studies

Twelve studies were cross-sectional by design [46–57] and are discussed below.

3.3.1. Attitude measures

All 12 cross-sectional studies included measures of general attitudes towards the menopause. Four studies [53,55–57] used the Menopause Attitudes Scale (MAS) [16], which is a semantic differential instrument that measures women's attitudes toward menopause with 20 bipolar adjective scales (e.g. ugly–beautiful; clean–dirty). Respondents rate each scale from 1 (most negative) to 7 (most positive), with 4 being regarded as neutral towards both adjectives. Respondents answer with regards to how in their opinion, a women in menopause felt. Cronbach alpha reliability for the MAS was .96 and a discriminant validity of $r = .42$. Hess et al. [46], Cheng et al. [49] and Hess et al. [50] used 6 or 7 items derived from the study of Study of Women's Health Across the Nation (SWAN) [13,44] as their attitude measure. Responses were rated from 1 (least negative) to 3 (most negative) and questions were reverse coded, summed and averaged to create a scaled response.

Bell [52] used the Attitudes Towards Menopause Scale (ATM) [15] which is a 35-item measure including items on negative affect, postmenopausal recovery, extent of continuity, control of symptoms, psychological losses, unpredictability and sexuality. Respondents indicate level of agreement with each statement on a 4-point scale, scores are summed and range from 35 (very negative attitude) to 140 (very positive attitude). Akkuzu et al. [51] used a 28-item revised version of the ATM [15, revised by 58]. This included the same sub-scales as the 35-item measure, consisting of 2 positive and 18 negative items on a 5-point scale, scored 0–4, high scores indicate positive attitudes. Huffman et al. [54] used both the MAS [16] and the ATM [15] combined as their attitude measure. Scores from both were standardised and averaged to create a new 'attitude' variable.

Barth Olofsson and Collins [47] asked about menopausal attitudes and perceptions in a semi-structured interview. Data was analysed, discussed by the research team and coded into positive, negative and defensive/neutral attitude categories. Shea [48] developed a 39-item attitude measure specifically designed for a Chinese sample and based on literature and observation of Chinese cultural practices and norms. It included 19-items about the cessation of menstruation and 20 on the transition from middle to old age. Responses were coded 1 (positive – agree/disagree), 2 (unsure), 3 (it depends) and 4 (negative – agree/disagree). Codes were multiplied by response frequency, added, then divided by 4 to give a negativity score for each item (1 = very positive, 4 = very negative and 2.5 = ambivalent/neutral attitudes).

3.3.2. Symptom measures

All 12 studies included symptom measures; 6 included symptom checklists ranging from 15 to 67 items [47,48,51,52,56,57], all of which included vasomotor, physical and emotional/psychological symptoms, 3 also included sexual symptoms such as vaginal dryness [47,48,56] and 1 also included quality of life [57]. Three of the 7 studies specified 'symptoms experienced during the previous 2 weeks' [48,52,56], 1 specified 'symptoms experienced during the previous 4 weeks' [47] and 2 also asked about symptom severity on scales of 0–3 [52] or 0–6 [57], with higher numbers referring to more troublesome symptoms. One measure was translated and adapted for a Chinese population [48], 1 for a Spanish population [56] and 1 for a Swedish population [47]. Translated symptom lists were piloted on the specific culture, developed by multi-cultural research teams [56], were similar to translations used in other culturally specific studies [47,56] or developed through participant observation, reading culturally specific literature and validated by cultural researchers [48], suggesting they were indeed culturally specific.

Papini et al. [53] used the Menopause Symptoms Checklist (MSC) [59] which assesses common physiological and psychological symptoms associated with menopause. Respondents indicated whether they had experienced any of the symptoms listed on the MSC with higher scores indicating greater frequency of menopausal symptoms. Huffman et al. [54] used the Menopause Symptoms List (MSL) [60], a measure of 25 symptoms often associated with menopause, including psychological, vasomotor and general somatic symptoms. Respondents rated symptoms for frequency and severity using Likert-scaling from 0 (never – frequency; not applicable – severity) to 5 (almost always – frequency; extreme – severity). Wilber et al. [55] used Kaufert and Syrotuik Symptom Index [61,62], a measure which assesses 15 physical, 8 nervous/psychological symptoms, 2 vasomotor symptoms and 3 sexual symptoms. Respondents are asked to rate the frequency of each symptom over the past 2 weeks as never, sometimes, or often.

Of the remaining 3 studies, 1 asked about frequency of HF/NS and vaginal dryness on a 5-point Likert scale from 'never' to 'all of the time' (those who reported having the symptoms at least 'some of the time' were classified as having symptoms) [46], 1 asked about frequency of HF/NS within the past 2 weeks [49] and 1 did not report how symptoms were measured [50].

3.3.3. Attitudes towards menopause

Ten studies reported generally on the content of women's attitudes, of these 6 found that attitudes were generally positive with women describing menopause as a natural life transition

[47–49,51,52,55] and 4 did not comment on whether attitudes were positive or negative overall [46,50,54,56]. In general younger, premenopausal women had more negative attitudes, suggesting that experiencing menopause tends to result in more positive attitudes [49]. However, these findings were not supported by Akkuzu et al. [51] and Bell [52], although Akkuzu et al. had a fairly small sample ($n = 42$) with most women aged 45–49 years. Three studies suggested that women with lower scores on emotional well-being (i.e. more depressive symptoms) had more negative attitudes [46,50,55]. This finding was also supported by the longitudinal study [44], suggesting that mood state prior to menopause might influence both menopausal attitudes and experience. There was some evidence suggesting that white women and/or those who were perimenopausal had more negative attitudes than non-white women [46,50] or pre and/or postmenopausal women [53,55]. There was also some evidence suggesting that women with higher levels of education [53,56], and stronger social support [50] had more positive attitudes towards menopause. Interestingly, Pappini et al. [53] found that wives with positive attitudes tended to have husbands with positive attitudes yet women's attitude was significantly more positive then men's.

3.3.4. The relationship between attitudes and symptoms experienced

All 12 studies commented on the relationship between menopausal attitudes and menopausal symptoms experienced. Eight studies found significant associations between attitudes and symptoms yet the actual symptoms affected varied among studies. For the 4 studies which reported the specific menopausal symptoms only (HF/NS and vaginal dryness), women with more negative attitudes were more likely to report more frequent symptoms [46,49,50,56]. For the 4 studies which reported the relationship between attitudes and other symptoms (such as irritability, sleeplessness, and headaches) negative attitudes towards the menopause were again related to more frequent symptoms [48,54,57] or suggested that attitude was more positive when symptoms were low [55]. However, these 'other symptoms' are not necessarily attributable to the menopause and relationships are often based on fairly small effects and should be interpreted with caution. Three cross-sectional studies found no significant relationship between menopausal attitude scores and the number and severity of symptoms experienced [51–53]; however these studies all measured a number of general and menopausal symptoms together and this may account for these negative findings. Interestingly, both Shea [48] and Wilbur et al. [55] found that vasomotor symptoms (HF/NS) were not related to menopausal attitudes thus differing from Avis and McKinlay's findings [44,45]. Nonetheless, the latter study [44,45] was the only study to prospectively examine women's attitude and subsequent symptoms.

Overall, these cross-sectional findings generally support prospective results that attitudes towards menopause affect the experience of specific menopausal symptoms, i.e. women with more negative attitudes prior to menopause have a higher frequency of hot flush reporting on reaching the menopause [45].

4. Discussion

Findings from the only prospective study which met the criteria for the review suggest women with more negative attitudes prior to menopause have a higher frequency of hot flush reporting later on [45]. Results from cross-sectional studies generally support this view. Many studies found that attitudes towards menopause overall were more positive or neutral than negative, yet the same relationship between attitudes and symptoms was observed regardless of the overall attitude. Younger women and pre or perimenopausal women had the most negative attitudes towards menopause, suggesting that the perimenopausal phase was the most difficult for women as it is often characterised by the most bodily changes. As women experience the transition they become less negative towards menopause. The results also suggest that Caucasian women tended to have more negative attitudes thus lending support for the 'western medicalisation hypothesis' [1], but environmental factors were important in that social support and education were associated with more positive attitudes. Depression was associated with both negative attitudes and menopausal symptoms, which presents methodological problems in that it is difficult to determine the direction of causality. Do greater menopausal symptoms lead to more negative attitudes or do more negative attitudes lead to greater menopausal symptoms, or might depressed mood influence both attitudes and symptom reports? Hunter and Liao [17] found that women with depressed mood were more likely to report HF/NS as problematic. Evidence from the prospective study [45] suggests that more negative attitudes lead to more menopausal symptoms; however more studies explicitly examining this link are required to determine true causality.

We also found some differences in the numbers of women experiencing HF/NS across cultures confirming previous reviews [1]; often the most frequent and bothersome symptoms reported were additional psychological and physical symptoms such as irritability, tiredness, depressed feelings, memory problems and aches and pains. These differences may be due to the different measures used to determine symptom experience, time periods in which symptoms were experienced and the culture in which the study was conducted. The included studies highlight the importance of using standardised, culturally sensitive measures developed from culturally appropriate qualitative research to determine menopausal attitudes and symptoms, particularly when attempting to investigate menopausal experience across cultures [14]. Nevertheless, in the current review we attempted to examine the relationships between attitudes and symptoms in studies conducted within a particular culture.

Thus negative social attitudes and women's own negative attitudes towards menopause appear to affect symptom experience and similarly menopause experience appears to influence attitudes in a positive direction. These findings have implications for health promotion [63] and also for specific menopausal symptom interventions, particularly those aimed at changing cognitions and/or behaviour such as Cognitive Behavioural Therapy (CBT). However, any intervention also needs to be culturally specific [12]. Rotem et al. [57] designed a 10-session psycho-educational programme for menopausal women, including bio-cultural and socio-cultural perspectives, diet, exercise and relaxation. Eighty-two women aged 40–60 years (36 treatment, 46 control) completed the Menopause Attitude Scale [16] and the Menopause Specific Quality of Life Questionnaire [64] at baseline and 3 months post-treatment. Findings showed an improvement in attitudes from baseline to follow-up among all participants and a significant reduction in perceived severity of physiological, psychological and social symptoms in the treatment group. This suggests women who participate in an intervention aimed at reducing negative attitudes may also find a reduction in perceived frequency and severity of symptoms.

Further prospective studies investigating the causal relationships between attitudes and symptoms are needed. Methodological considerations for future studies include the use of standardised symptom measures, the use of culturally sensitive attitude measures and larger samples in order to examine mediation for additional variables including mood, and lifestyle factors.

Provenance

Commissioned and externally peer reviewed.

Competing interest

None declared.

Contributors

All authors contributed equally.

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